Take Test: Quiz 3.3

Test Information

Description

Instructions

Multiple Attempts This test allows multiple attempts.

Force Completion This test can be saved and resumed later.

QUESTION 1

1 points Saved

For the RLC series circuit with applied voltage $v(t)$, which of the following best describes why $\begin{bmatrix} v_c(t) \\ v(t) \end{bmatrix}$ cannot be a state vector?

- The applied voltage $v(t)$ is an output.
- The applied voltage $v(t)$ provides the same information as $v_c(t)$.
- The applied voltage $v(t)$ is an input.
- Three elements, not two, are needed to fully specify the state.

QUESTION 2

1 points Saved

The state equation for the RLC series circuit was derived from which of the following (more than one may be correct)?

- [ ] The differential equations that arose from Newton's law.
- [ ] The circuit equation that arose from Kirchoff's current law.
- [ ] The definition of the voltage drop across the resistor.
- [x] The circuit equation that arose from Kirchoff's voltage law.

QUESTION 3

1 points Saved

The output equation from the RLC series circuit was derived from which of the following (more than one may be correct)?

- ( ) The circuit equation that arose from Kirchhoff's voltage law.
- ( ) The definition of the output as the voltage across the inductor.
- ( ) The output equation always employs $C = [\ 1\ \ 0\ ]$.
- (•) The definition of the output as the voltage across the capacitor.

QUESTION 4

1 points Saved

Is it possible to have an output equation $y(t) = v_c(t) + 3$?

Question Completion Status:

1 2 3 4

- ( ) the equation is a linear combination of the state and the input.
- (•) No, because only the state and the input can appear on the right-hand side of the output equation.
- ( ) No, because $v_c(t)$ is not an element of the state.

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

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